Company BRALCO METALS a321 CANFORD ST PICO RIVERA, CALIFORNIA 90660		Issue Date NOVEMBER 25, 1985 REVISED MARCH 1, 1988	Identification Number CARBON STEEL i.e. A38 1018, 1010, 1040 PRESSURE VESSLE QUALITY LEADED CARBON i.e. 10L42	
Trade Name (Common Name or Synonym)	CARBON STEEL HR & CR LEADED CARBON	Emergency Phone Number 213-582- 213-723-		
Chemical Name		Formula	DOT Identification Number NA	

I. INGREDIENTS

AND METALLIC COATINGS		······································			ACGIH TLV (mg/m²)
8ase Metal	CAS #		OSHA PEL		
Iron Alloying Elements	7439-89-6	97-99	10	5 (As Iron (Oxide)
Manganese (Mn) Carbon (C)	7439-96-5 7440-44-0	<2 <2	5 N.E.	5 (As Dust-(N.E.	Ceiling)
Aluminum (Al) Phosphorus (P)	7429-90-5 7723-14-0	41 41	N.E.	in (Yellow)	
Sulfur (S) . Silicon (Si)	7704-34-9 7740-21-3	q	13 15	Š (As SO ₂) In (Total Di	ist)
Vanadium (V) Colombian (Cb) Bismuth (Bi)	7440-62-2 7440-03-1	<1 <1	.5 N.E.		pirable Nust.)
Lead Carbon i.e. 10142	7440-69-9	(1	N.E.	N.F.	
Lead (Pb)	7439-92-1	∢1	.05	.15 (Dust-Fi	ıme)

II. PHYSICAL DATA

Material is (At Normal Condition [] Liquid Solid Gas	Other			Appearance and GREY/	Odor BLACK, ODORLESS	
Acidity/Alkalinity						Vapor Pressure
pH - · NA	Melting Point Boiling Point	> 2500 NA	F F	Specific Gravity (H ₂ O = 1) Solubility in water (% by weight)	APPROXIMATELY 7	(mm Hg at 20 C) NA

III. PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection SHOULD BE USED TO AVOID EXCESSIVE INHALATION OF PARTICULATES WHEN EXPOSURE EXCEEDS TLV'S	Hands, Arms and Body. PROTECTIVE GLOVES ARE RECOMMENDED DURING HANDLING OF FINES EXPOSURE
Eyes and Face SAFETY GLASSES OR GOGGLES SHOULD BE UTILIZED AS REQUIRED BY EXPOSURE	Other Clothing and Equipment OTHER PROTECTIVE EQUIPMENT SHOULD BE UTILIZED AS REQUIRED BY THE WELDING STANDARD
IV. EMERGENCY MEDIC	AL PROCEDURES
IF EXPOSED TO EXCESSIVE LEVELS OF METAL FUMES, REMOVE TO FRE	SH AIR,
SEEK MEDICAL AID IMMEDIATELY.	



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JRNING, WELDIN	IS IN THE NATURAL S IG, SAWING, BRAZING	STATE DO NOT PRESENT AND GRINDING MAY RELI	AN INHALATION, INGESTION OR CONTACT HAZARI ASE FUMES AND/OR DUSTS WHICH MAY PRESEN	D. HOWEVER, OPERATIONS SUCH AS IT HEALTH HAZARDS IF TLV'S ARE EXCEEDE
AJOR EXPOSUR		SKIN ABSORPTION	DINGESTION	
	· ·			

Short term exposure to fumes/dust may produce irritation of eyes and respiratory system. Inhalation of high concentrations of freshly formed oxide fumes of iron, manganese, and lead may cause metal fume fever, characterized by a metallic taste in the mouth, dryness and irritation of the throat and influenza-like symptoms.

Chronic inhalation of high concentrations of iron oxide fumes or dust may lead to benign pneumoconiosis (siderosis). Inhalation of high concentrations of ferric oxide may possibly enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens.

Inhalation or ingestion of lead particles may result in lead-induced systemic toxicity. Symptoms of lead poisoning include abdominal cramps, anemia, muscle weakness and headache. Prolonged exposure can cause behavioral changes, kidney damage, CNS damage and reproductive effects.

SUSPECTED CANCER AGENT? NO. THIS PRODUCTS INGREDIENTS ARE NOT FOUND IN THE LISTS BELOW YES: FEDERAL OSHA NTP HARC

Fire and Explosion	Flach Point NA F	Extinguishing Media NA						
		azards RODUCTS IN THE SOLID STAT NO FIRE OR EXPLOSION HA.		Extinguishing Media not to be used . NA				
ř,	Stability Stable []Unstable Incompatibility (Materials to Avoid) REACTS WITH STRONG ACIDS TO PRODUCE HYDROGEN GAS							
Reactivity	Conditions to Avoid NA							
B	Hazardous Decomposition Products METALLIC DUST OR FUMES MAY BE PRODUCED DURING WELDING, BURNING, GRINDING & POSSIBLY MACHINING. REFER TO ANSI Z49.1							
	,		VI. ENVIF	ONMENTAL				

Spill or Leak Procedures

N

Waste Disposal Method

ACCORDING TO LOCAL, STATE AND FEDERAL REGULATIONS

VII. ADDITIONAL INFORMATION

VENTILATION: LOCAL EXHAUST VENTILATION SHOULD BE UTILIZED WHEN WELDING, BURNING.

SAWING, BRAZING, GRINDING OR MACHINING WHEN EXPOSURE EXCEEDS TLV'S

IN WELDING, PRECAUTIONS SHOULD BE TAKEN FOR AIRBORNE CONTAMINATES

WHICH MAY ORIGINATE FROM COMPONENTS OF WELDING ROD

ARC OR SPARK GENERATED WHEN WELDING OR BURNING COULD BE A SOURCE

OF IGNITION FOR COMBUSTABLE AND FLAMMABLE MATERIALS

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Company BRALCO METALS 8321 CANFORD ST PICO RIVERA, CALIFORNIA 90880	Issue Date NOVEMBER 25, 1985 REVISED MARCH 1, 1988	Identification Number ALLOY STEEL HR & CR ALLOY LEADED STEEL
Trade Name (Common Name or Synonym) ALLOY LEADED i.e. 86L20 ALLOY STEEL i.e. 4130, 4140, 4340, 8620	Emergency Phone Number 213-582 213-723	
Chemical Name	Formula	DOT Identification Number NA

I. INGREDIENTS

Base Metal	CAS #		OSHA PEL		
Iron (Fe)	7439-R9-6	86-99	10	5 (As Iron Oxide)	
Alloying Elements					
Nickel (Ni)	7440-02-0	<5	1	1	
Chromium (Ĉr)	7440-47-3	< 5	.5	.5	
Silicon (Si)	7740-21-3	<5	.5 15	10 (Total Dust)	
Hanganese (Mn)	7439-96-5	<2	5	5 (As Dust-Ceiling)	
Carbon (C)	7440-44-0		N.E.	N.Ė.	•
Molybdenum (Mo)	7439-98-7	< 2	15	10 (Insoluble Compound)	
Vanadium (V)	7440-62-2		.5	.05 (Respirable Dust)	
Aluminum (Al)	7429-90-5	< 2	N.E.	10	
Sulfur (S)	7704-34-9	<2	13	5 (As SO ₂)	
Phosphorus (P)	7723-14-0	<1	.1	.1 (Yellow)	
Bismuth (Bi)	7440-69-9		N.E.	N.E.	
Copper (Cu)	7440-50-8	<1	1	l (Dust & Hist)	
Leaded Alloy		•		,	
Lead (Pb)	7439-92-1	<1	.05	.15 (Dust & Fume)	

II. PHYSICAL DATA

Material is (At Normal Conditio	ns)	Appea	rance and Odor	
☐ Liquid 🛗 Solid 🗍 Gas	☐ Other		GREY/BLACK ODORLESS	
Acidity/Alkalinity				Vapor Pressure
pH - NA	Melting Point > 2500 F Boiling Point NA F	Specific Gravity (H ₂ O = 1 Solubility in water (% by	weight)	(mm Hg at 20 C)
<u> </u>	NA	Solubility in water (E by	worght) NA	NA

III. PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection NIOSH/MSHA APPROVED DUST & FUME RESPIRATOR SHOULD BE USED TO AVOID EXCESSIVE INHALATION OF PARTICULATES WHEN EXPOSURE EXCEEDS TLV'S	Hands, Arms and Body. PROTECTIVE GLOVES ARE RECOMMENDED DURING HANDLING OF FINES EXPOSURE
Eyes and Face SAFETY GLASSES OR GOGGLES SHOULD BE UTILIZED AS REQUIRED BY EXPOSURE	Other Clothing and Equipment OTHER PROTECTIVE EQUIPMENT SHOULD BE UTILIZED AS REQUIRED BY THE WELDING STANDARD

IV. EMERGENCY MEDICAL PROCEDURES

IF EXPOSED TO EXCESSIVE LEVELS OF METAL FUMES, REMOVE TO FRESH AIR, SEEK MEDICAL AID IMMEDIATELY.

STEEL PRODUCTS IN THE NATURAL STATE DO NOT PRESENT AN INHALATION, INGESTION OR CONTACT HAZARD, HOWEVER, OPERATIONS SUCH AS BURNING, WELDING, SAWING, BRAZING AND GRINDING MAY RELEASE FUMES AND/OR DUSTS WHICH MAY PRESENT HEALTH HAZARDS IF TLY'S ARE EXCEEDED

MAJOR EXPOSURE HAZARD **INHALATION**

SKIN CONTACT

SKIN ABSORPTION

MIGESTION

Short term exposure to fumes/dust may produce irritation of eyes and respiratory system. Inhalation of high concentrations of freshly formed oxide fumes of iron, manganese, copper and lead may cause metal fume fever, characterized by a metallic taste in the mouth, dryness and irritation of the throat and influenza-like symptoms.

Chronic inhalation of high concentrations of iron oxide fumes or dust may lead to a benign pneumoconiosis (siderosis). Inhalation of high concentrations of feric oxide may possibly enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens.

Inhalation or ingestion of lead particles may result in lead induced systemic toxicity. Sym toms of lead poisoning include abdominal cramps, anemia, muscle weakness and headache. Pro-longed exposure can cause behavioral changes, kidney damage, CNS damage and reproductive Sympeffects.

Chromium and nickel and their compounds are listed in the 3rd Annual Report on carcinogens, as prepared by the National Toxicology Program (RP). Exposure to high concentrations of dust and funes can cause sensitization dermatitus, inflammation and/or ulceration of upper respiratory tract and possible cancer of nasal passages and lungs.

Recent epidemiological studies of workers melting and working alloys containing nickel/ chromium have found no increased risk of cancer.

NO. THIS PRODUCTS INGREDIENTS ARE NOT FOUND IN THE LISTS BELOW SUSPECTED CANCER AGENT? FEDERAL OSHA NTP HARC **∠**YES

Fue and Explosion	Flash Point NA F	Auto Ignition Temperature NA F	Flammable Limits in Air Lower % Upper NA %	Extinguishing Media NA			
	Fire and Explosion H			Extinguishing Media not to be used			
	STEEL PR	ODUCTS IN THE SOLID STAT	E	NA C			
	PRESENT	NO FIRE OR EXPLOSION HA	ZARD				
3	Stability	Incompatibility (Materials 1	o Avoid) RÉACTS WI	TH STRONG ACIDS TO PRODUCE HYDROGEN GAS			
a Ctivi	Conditions to Avoid	NA					
ď	Hazardous Decomposition Products METALLIC DUST OR FUMES MAY BE PRODUCED DURING WELDING, BURNING, GRINDING & POSSIBLY MACHINING. REFER TO ANSI Z49.1						

VI. ENVIRONMENTAL

Spill of Leak Procedures

NA

Waste Disposal Method

ACCORDING TO LOCAL STATE AND FEDERAL-REGULATIONS

VII. ADDITIONAL INFORMATION

VENTILATION: LOCAL EXHAUST VENTILATION SHOULD BE UTILIZED WHEN WELDING, BURNING

SAWING, BRAZING, GRINDING OR MACHINING WHEN EXPOSURE EXCEEDS TLV'S

IN WELDING. PRECAUTIONS SHOULD BE TAKEN FOR AIRBORNE CONTAMINATES

WHICH MAY ORIGINATE FROM COMPONENTS OF WELDING ROD

ARC OR SPARK GENERATED WHEN WELDING OR BURNING COULD BE A SOURCE

OF IGNITION FOR COMBUSTABLE AND FLAMMABLE MATERIALS

Company BRALCO METALS 8321 CANFORD ST. PICO RIVERA, CALIFORNIA 90860	NOVEMBER 25, 1985 REVISED MARCH 1, 1988	Identification Number GALVANIZED SHEET CARBON STEEL - HSLA STEEL GALVALUME - ELECTROLYTIC
Rade Name (Common Name or Synonym) GALVANIZED	Emergency Phone Number 213-582 213-723	
Chemical Name	Formula	DOT Identification Number NA

I. INGREDIENTS

BASE METAL, ALLOYING ELEMENTS AND METALLIC COATINGS	CAS #	% COMPOSITION BY WEIGHT (1)	OSHA PEL	ACGIH TLV (mg/m²) (2
BASE METAL				
Iron (fe)	7439-89-6	Balance	10	5 (as from oxide)
ALLOYING ELEMENTS				
Carbon (C)	7440-44-0	.25 Max.	N.E.	N.E.
Manganese (Mn)	7439-96-5	2	5	5 (as dust-cefling)
Phosphorus (P)	7223-14-0	.15 Max	.1	1 (yellow)
Sulfur (S)	7704-34-9	.05 Max.	13	5 (as So)
Columbium	7440-03-1	.10 Max.	.02	.02
Niobium (Nb)				•••
Vanadium (V)	7440-62-2	.20 Max.	.5	.05 (as respirable dust)
Titanium (Ti)	7440-32-6	.30 Max.	15	10 (total dust)
Rare Earth (Ce)		.10 Max	Ñ.E.	N.E.
Aluminum (Al)	7429-90-5	.10 Max.	N.E.	10 (yellow)
Chromium (Cr)	7440-47-3	.01-2.0	l as chrome	.5 as chrome salts
Nickel (Ni)	7440-02-0	.01-1.0	1	.5 as chrome saits
Copper (Cu)	7440-50-8	.01-1.0	i	1 (as dust & mist)
METALLIC COATING			•	1 (as dust a mist)
Zinc (Zn)	7440-66-1	10 Max	5	5.0 (10)
Aluminum (Al)	7429-90-5	6 Max	Ň.E.	
Antimony (Sb)	7440-36-0	.02 Max	.5	10 (yellow)
Lead (P6)	7439-92-1	.02 Max		.5
Iron (Fe)	7439-89-6	2	.05 10	.15 (Dust-fume)
Silicon (SI)	7740-21-3	.2 Max	15	5 (as Iron Oxide) 10 (Total Dust)

II. PHYSICAL DATA

Material is (At Normal Condition	·	Appearance and Odor METALLIC G	REY, ODORLESS		
[] Liquid [Solid [] Gas Acidity/Alkalinity	☐ Other				Vapor Pressure
pH - NA	Melting Point 2750 F Metallic Coating 800 - 1040 F	Specific Gravity (Solubility in wate	•	7.6 - 7.8 NA	(mm Hg at 20 C) NA

III. PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection NIOSH/MSHA APPROVED DUST & FUME RESPIRATOR SHOULD BE USED TO AVOID EXCESSIVE INHALATION OF PARTICULATES WHEN EXPOSURE EXCEEDS TLV'S	Hands, Arms and Body. PROTECTIVE GLOVES ARE RECOMMENDED DURING HANDLING OF FINES EXPOSURE
Eyes and Face SAFETY GLASSES OR GOGGLES SHOULD BE UTILIZED AS REQUIRED BY EXPOSURE	Other Clothing and Equipment OTHER PROTECTIVE EQUIPMENT SHOULD BE UTILIZED AS REQUIRED BY THE WELDING STANDARD

IV. EMERGENCY MEDICAL PROCEDURES

IF EXPOSED TO EXCESSIVE LEVELS OF METAL FUMES, REMOVE TO FRESH AIR,

SEEK MEDICAL AID IMMEDIATELY.

STEEL PRODUCTS IN THE NATURAL STATE DO NOT PRESENT AN INHALATION, INGESTION OR CONTACT HAZARD, HOWEVER, OPERATIONS SUCH AS BURNING, WELDING, SAWING, BRAZING AND GRINDING MAY RELEASE FUMES AND/OR DUSTS WHICH MAY PRESENT HEALTH HAZARDS IF TLY'S ARE EXCEEDED MAJOR EXPOSURE HAZARD MINHALATION . . SKIN CONTACT SKIN ABSORPTION □INGESTION

Short term exposure to fumes/dust may produce irritation of eyes and respiratory system. Inhalation of high concentrations of freshly formed oxide fumes of iron, manganese, and lead may cause metal fume fever, characterized by a metallic taste in the mouth, dryness and irritation of the throat and influenza symptoms.

Chronic inhalation of high concentrations of iron oxide fumes or dust may lead to benign pneumoconiosis (siderosis). Inhalation of high concentrations of ferric oxide may possibly enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens.

Inhalation or ingestion of lead particles may result in lead-induced systemic toxicity. Symptoms of lead poisoning include abdominal cramps, anemia, muscle weakness and headache. Prolonged exposure can cause behavioral changes, kidney damage, CNS damage and reproductive effects.

Chromium and nickel and their compounds are listed in the 3rd Annual Report on carcinogens, as prepared by the National Toxicology Program (NTP). Exposure to high concentrations of dust and fumes can cause sensitization dermatitis, inflammation and/or ulceration of upper respiratory tract and possibly cancer of nasal passages and lungs.

Recent epidemiological studies of workers melting and working alloys containing nickel/chromium have found no increased risk of cancer.

Subjecting zinc or alloys containing zinc to high temperatures (such as occurs during welding) will cause the formation of zinc oxide. Exposure to zinc oxide fumes or dusts can result in a flu-like illness called metal fume fever. Early symptoms may include a sweet or metallic taste in the mouth, dryness and irritation of the throat, and caughing. These symptoms may progress to shortness of breath, headache, fever, chills, muscle aches, nausea, vomiting, weakness, fatigue and profuse sweating. The attack may last 6-48 hours and is more likely to occur after a period away from the job.

SUSPECTED CANCER AGENT? NO. THIS PRODUCTS INGREDIENTS ARE NOT FOUND IN THE LISTS BELOW YES: FEDERAL OSHA NTP IARC

Ĺ	y 123. FEDERAL COSTA VIET INNO										
Fire and	Flash Point NA F	Auto Ignition Temperature NA F	Flammable Limits in Aw Lower % Upper NA %	Extinguishing Media NA							
		Hazards RODUCTS IN THE SOLID STAT T NO FIRE OR EXPLOSION HA		Extinguishing Media not to be used							
livity	Stability Stable []Unstable	AT TEMPERATE		4 STRONG ACIDS TO PRODUCE HYDR DINT OF THE COATING, MAY PRODUCE							
Reacti	Conditions to Avoid Hazardous Decompo	osition Products	PRODUCED DURING W	G WELDING, BURNING, GRINDING & POSSIBLY MACHINING. REFER TO ANSI Z							
	-		VI. ENVIR	NMENTAL	·						

Spill or Leak Procedures

NA

Waste Disposal Method

ACCORDING TO LOCAL, STATE AND FEDERAL REGULATIONS

VII. ADDITIONAL INFORMATION

VENTILATION: LOCAL EXHAUST VENTILATION SHOULD BE UTILIZED WHEN WELDING, BURNING,

SAWING, BRAZING, GRINDING OR MACHINING WHEN EXPOSURE EXCEEDS TLV'S

IN WELDING PRECAUTIONS SHOULD BE TAKEN FOR AIRBORNE CONTAMINATES

WHICH MAY ORIGINATE FROM COMPONENTS OF WELDING ROD

ARC OR SPARK GENERATED WHEN WELDING OR BURNING COULD BE A SOURCE

OF IGNITION FOR COMBUSTABLE AND FLAMMABLE MATERIALS

Company BRALCO METALS 6321 CANFORD STREET PICO RIVERA, CALIFORNIA 90880	issue Date NOVEMBER 25, 1985 REVISED MARCH 1, 1988	Identification Number 3XXX SERIES 4XXX SERIES
Trade Name (Common Name or Synonym) STAINLESS STEEL	Emergency Phone Number 213-582 213-723	
Chemical Name	Formula	DOT Identification Number NA

I. INGREDIENTS

BASE METAL, ALLOYING ELEMENTS AND METALLIC COATINGS	CAS #	% COMPOSITION BY WEIGHT (1)		A PEL	ACGIH TLV (mg/m²) (
•	CAS #		OSHA PEL		
Base Metal			10	5 (As Iron	Oridel
Iron (Fe)	7439-89-6	60-88		3 (13 11011	02106)
Alloying Elements Chromium (Cr)	7440-47-3	10-30	.5	.5	
Nickel (Ni)	7440-02-0	0-27	Ĭ	i ¯	
MICKEL (MI)	, 440-02-0				
Hanganese (Hn)	7439-96-5	< 6	, 5	5 (As Dust	
Holybdenum (Ho)	7439-98-7	<6	15		hle Compound)
Copper (Cu)	7440-50-8	< 6	.!	1 (Nust A	
Titanium (Ti)	7440-32-6	<6	15	10 (Total	nust)
Carbon (C)	7440-44-0	<2	N.E.	N.E.	
Phosphorus (P)	7723-14-0	</td <td>, i</td> <td>.1 (Yellow</td> <td>}</td>	, i	.1 (Yellow	}
Sulfur (S)	7704-34-9	<2	13	5 (As 502)	
Silicon (SI)	7740-21-3	<2	15	In (Total	
Cobalt (Co)	7440-48-4	47	.1	.1 (Dust &	Fume)
Niobium (Nb)	7440-03-1	<2	5	5 (Tantalu	m)
Tin (Sn)	7440-31-5	<2	2	2	
		-			

II. PHYSICAL DATA

Material is (At Normal Condition Liquid Solid Gas		Appearance and GREY/	Odor BLACK, ODORLESS			
Acidity/Alkalinity	Maluna Baint			Carallia Community (N.O. a. 1)		Vapor Pressure (mm Hg at 20 C)
pH - NA	Melting Point Boiling Point	2500 NA	F	Specific Gravity (H,O = 1) Solubility in water (% by weight)	APPROXIMATELY 7	NA

III. PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection NIOSH/MSHA APPROVED DUST & FUME RESPIRATOR SHOULD BE USED TO AVOID EXCESSIVE INHALATION OF PARTICULATES WHEN EXPOSURE EXCEEDS TLV'S	Hands, Arms and Body. PROTECTIVE GLOVES ARE RECOMMENDED DURING HANDLING OF FINES EXPOSURE
Eyes and Face SAFETY GLASSES OR GOGGLES SHOULD BE UTILIZED AS REQUIRED BY EXPOSURE	Other Clothing and Equipment OTHER PROTECTIVE EQUIPMENT SHOULD BE UTILIZED AS REQUIRED BY THE WELDING STANDARD
IV. EMERGENCY MEDICA	L PROCEDURES
IF EXPOSED TO EXCESSIVE LEVELS OF METAL FUMES, REMOVE TO FRESH	AIR.
SEEK MEDICAL AID IMMEDIATELY.	

MAJON	EXPUSUR	E HAZARD					`
MHMI 🔯	ALATION	☐ \$KIN COI	NTACT	SKIN ABSOR	PTION DINGES	TION	
		halation o	of high al fume		s of freshly for		on of eyes and respiratory system. In- e fumes or iron, mangane'se and copper may te in the mouth, dryness and irritation
							le fumes or dust may lead to a benign strations of ferric oxide may possibly s exposed to pulmonary carcinogens.
		as prepare	ed by th	ne National To		im (MIP). inflamma	the 3rd Annual Report on carcinogens, Exposure to high concentrations of dust ution and/or ulceration of upper respira- lungs:
		Recent epi chromium	idemiolo have fou	ogical studies	s of workers me sed risk of can	ting and	working alloys containing nickel/
							•
SUSPE	CTED CAN	ICER AGENT?		THIS PRODUCTS FEDERAL OSH		NOT FOU	ND IN THE LISTS BELOW
					Flammable Limits		
달흑	Flash Poin	INA F A	luto Igniti	on Temperature	im Ass		
. d				NA F	Lower % Upper NA %	EXTIN	guishing Media NA
Explusion	Fire and E	xplosion Haza	ard s	NA F	Lower % Upper NA %	<u> </u>	guishing Media NA
	Fire and E	xplosion Haza STEEL PROD	UCTS IN	THE SOLID STAT	Upper NA %	<u> </u>	
	Fire and E	xplosion Haza STEEL PROD	UCTS IN		Upper NA %	<u> </u>	tinguishing Media not to be used
	Fire and E	XPIOGION HAZA STEEL PRODI PRESENT NO	DEFIRE OR	THE SOLID STAT EXPLOSION HA	Upper NA %	Ex	tinguishing Media not to be used
	Stability	xplosion Haza STEEL PRODI PRESENT NO	DEFIRE OR	THE SOLID STAT EXPLOSION HA	Upper NA %	Ex	tinguishing Media not to be used NA
	Stability Stable {	xplosion Haza STEEL PRODI PRESENT NO	DETS IN DETRE OR INCOMPATIL	THE SOLID STAT	Upper NA % E ZARD TO Avoid) REACTS	WITH STR	tinguishing Media not to be used NA
	Stability Stable {	xplosion Haza STEEL PRODI PRESENT NO	DETS IN DETRE OR INCOMPATIL	THE SOLID STAT	Upper NA % E ZARD TO Avoid) REACTS	WITH STR	NA ONG ACIDS TO PRODUCE HYDROGEN GAS BURNING, GRINDING & POSSIBLY MACHINING REFER TO ANSI Z49.1
Rescuelty	Stability Stable {	xplosion Haza STEEL PRODI PRESENT NO JUnistable to Avoid Decomposition METALLIC DU	DETS IN DETRE OR INCOMPATIL	THE SOLID STAT	Upper NA % E ZARD SO Avoid) REACTS PRODUCED DURING	WITH STR	NA ONG ACIDS TO PRODUCE HYDROGEN GAS BURNING, GRINDING & POSSIBLY MACHINING REFER TO ANSI Z49.1
Rescharty	Stability Stable { Conditions Hezerdous	xplosion Haza STEEL PRODI PRESENT NO Ito Avoid Decomposition METALLIC DU	NA ON Product UST OR FI	THE SOLID STAT I EXPLOSION HA Dility (Materials t	Upper NA % E ZARD RO Avoid) REACTS PRODUCED DURING VI. ENV	WITH STR WELDING.	NA ONG ACIDS TO PRODUCE HYDROGEN GAS BURNING, GRINDING & POSSIBLY MACHINING REFER TO ANSI Z49.1 ENTAL
Rescharty	Stability Stable { Conditions Hazardous	xplosion Haza STEEL PRODI PRESENT NO Ito Avoid Decomposition METALLIC DU	NA ON Product UST OR FI	THE SOLID STAT EXPLOSION HA Dility (Materials to the state of the st	Upper NA & E ZARD REACTS PRODUCED DURING VI. ENV	WITH STR WELDING. VIRONM NA EDERAL RE	NA ONG ACIDS TO PRODUCE HYDROGEN GAS BURNING, GRINDING & POSSIBLY MACHINING REFER TO ANSI Z49.1 ENTAL
Spin o	Stability Stable (Conditions Hazardous or Leak Pro	xplosion Haza STEEL PRODI PRESENT NO JUnstable to Avoid Decomposition METALLIC DU	NA On Produc JST OR F	THE SOLID STAT EXPLOSION HA Dility (Materials to the state of the st	Upper NA & E ZARD RO Avoid) REACTS PRODUCED DURING VI. ENV CCAL, STATE AND F VII. ADDITIO	WITH STR WELDING. VIRONM NA EDERAL RE	NA ONG ACIDS TO PRODUCE HYDROGEN GAS BURNING, GRINDING & POSSIBLY MACHINING REFER TO ANSI Z49.1 ENTAL GULATIONS FORMATION
Spill of Waste	Stability Stable { Conditions Hazardous or Leak Pro thisposal	xplosion Haza STEEL PRODI PRESENT NO [Unstable to Avoid Decomposition METALLIC DL Decedures Method	NA On Product UST OR FI	THE SOLID STAT I EXPLOSION HA Diffty (Materials t UMES MAY BE P	Upper NA & E ZARD RO Avoid) REACTS PRODUCED DURING VI. ENV CAL, STATE AND F VII. ADDITIO JILD BE UTILIZED V	WITH STR WELDING. VIRONM NA EDERAL RE NAL IN	NA ONG ACIDS TO PRODUCE HYDROGEN GAS BURNING, GRINDING & POSSIBLY MACHINING REFER TO ANSI Z49.1 ENTAL GULATIONS FORMATION
Spill (Stability Stable { Conditions Hazardous Of Leak Pro Of	XPIOSION HAZA STEEL PRODI PRESENT NO JUnstable to Avoid Decomposition METALLIC DL Decedures Method	NA ON Production of the Control of t	THE SOLID STAT I EXPLOSION HA DINTY (Materials to CITE UMES MAY BE P	Upper NA & E ZARD RO Avoid) REACTS PRODUCED DURING VI. ENV CCAL, STATE AND F VII. ADDITIO	WITH STR WELDING. VIRONM NA EDERAL RE NAL IN WHEN WELD EOS TLV'S	NA ONG ACIDS TO PRODUCE HYDROGEN GAS BURNING, GRINDING & POSSIBLY MACHINING REFER TO ANSI Z49.1 ENTAL GULATIONS FORMATION
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SpiR d Waste	Stability Stable { Conditions Hazardous Or Leak Pro Or	xplosion Haza STEEL PRODI PRESENT NO Unstable to Avoid Decomposition METALLIC DL Coedures Method LOCAL EXH. AZING, GRINDI PRECAUTION ORIGINATE FE	NA ON PRODUCTS IN NA ON PRODUCTS OR FI	THE SOLID STAT EXPLOSION HA Dility (Materials to the state of the st	Upper NA & E ZARD RO AVOID) REACTS PRODUCED DURING VI. ENV CAL, STATE AND F VII. ADDITIO JLD BE UTILIZED W H EXPOSURE EXCE R AIRBORNE CONT ELDING ROD URNING COULD BE	WELDING. TRONM NA EDERAL RE NAL IN THEN WELD EDS TLV'S AMINATES	NA ONG ACIDS TO PRODUCE HYDROGEN GAS BURNING, GRINDING & POSSIBLY MACHINING REFER TO ANSI Z49.1 ENTAL GULATIONS FORMATION

Company BRALCO METALS 8321 CANFORD ST PICO RIVERA, CALIFORNIA 90660	issue Date NOVEMBER 25, 1985 REVISED MARCH 1, 1988	Identification Number 1XXX THRU 7XXX SERIES LEADED 2011 & 6262
Trade Name (Common Name or Symonym) ALUMINUM ALLOYS ALUMINUM ALLOYS CONTAINING LEAD	Emergency Phone Number 213-582- 213-723-	
Chemical Name	Formula .	DOT Identification Number NA

I. INGREDIENTS

BASE METAL, ALLOYING ELEMENTS AND METALLIC COATINGS	CAS & % COM	POSITION BY WEIG	SHT (1) OS	SHA PEL	ACGIH TLV (mg/m²) (2
Base Metal	CAS #		OSHA PEL		
Aluminum (Al)	7429-90-5	80-99.7	N.E.	10 (M	letal & Oxide)
Alloying Elements				•	•
Copper (Cu)	7440-50-8	<10	1	1 (Du	st & Mist)
Magnesium (Mg)	1309-48-4	<10	15	10	
Zinc (Zn)	7440-66-6	<10	N.E.		Fume)
Cobalt (Co)	7440-48-4	<2	.1	.1 (n	ust & Fume)
Iron (Fe)	7439-89-6.	<2	10		Iron Oxide)
Manganese (Mn)	7439-96-5	<2	5		Dust-Ceiling)
Silicon (Si)	7440-21-3	<2	15		otal Dust)
Tin (Sn)	7440-31-5	<2	2	2 .	000
Chromium (Cr)	7440-47-3	<.5	•5	.5	
Nickel (Ni)	7440-02-0	<.5	Ĭ	i	
Leaded Alloys 2011 & 6262	•		•	• .	
Lead (Pb)	7439-92-1	<1	.05	.15 (Dust & Fume)

II. PHYSICAL DATA

ſ	Material is (At Normal Condition	ue)		Appearance and Odor	
Ĺ	[7] Liquid 😭 Solid 📋 Gas	☐ Other		SILVER METALLIC, ODORLESS	
	Acidity/Alkalinity				Vapor Pressure
	pH - NA	Melting Point 440 - 1220 F Bailing Point NA F	Specific Gravity (I Solubility in water	2.5 2.5	(mm Hg at 20 C) NA

III. PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection NIOSH/MSHA APPROVED DUST & FUME RESPIRATOR SHOULD BE USED TO AVOID EXCESSIVE INHALATION OF PARTICULATES WHEN EXPOSURE EXCEEDS TLV'S	Hands, Arms and Body. PROTECTIVE GLOVES ARE RECOMMENDED OURING HANDLING OF FINES EXPOSURE
Eyes and Face SAFETY GLASSES OR GOGGLES SHOULD BE UTILIZED AS REQUIRED BY EXPOSURE	Other Clothing and Equipment OTHER PROTECTIVE EQUIPMENT SHOULD BE UTILIZED AS REQUIRED BY THE WELDING STANDARD

IV. EMERGENCY MEDICAL PROCEDURES

IF EXPOSED TO EXCESSIVE LEVELS OF METAL FUMES, REMOVE TO FRESH AIR,

SEEK MEDICAL AID IMMEDIATELY

STEEL PRODUCTS IN THE NATURAL STATE DO NOT PRESENT AN INHALATION, INGESTION OR CONTACT HAZARD, HOWEVER, OPERATIONS SUCH AS BURNING, WELDING, SAWING, BRAZING AND GRINDING MAY RELEASE FUMES AND/OR DUSTS WHICH MAY PRESENT HEALTH HAZARDS IF TLV'S ARE EXCEEDED MAJOR EXPOSURE HAZARD

NHALATION

SKIN CONTACT TISKIN ABSORPTION

TINGESTION

Aluminum dust should be treated as a nuisance dust and high exposure may produce irritation of eyes and respiratory system. The potential for overexposure to copper fume may exist when welding, flame cutting, etc. on alloys containing high amounts of copper >2.5%. These alloys include 2XXX, 7XXX and 4145 wrought alloys. Overexposure to copper fume can result in respiratory irritation, nausea and metal fume fever.

Nickel and chromium are contained in certain alloys at levels of 0.1% or more. Chromium and nickel and their compounds are listed in the 3rd Annual Report on Carcinogens, as prepared by the National Toxicology Program (NTP). Their presence in Aluminum alloys, however, should not present a carcinogenic or health concern due to either their low concentrations or the chemical form in which they are present.

Inhalation or ingestion of lead particles may result in lead-induced systemic toxicity. Sym toms of lead poisoning include abdominal cramps, anemia, muscle weakness and headache. Prolonged exposure can cause behavioral changes, kidney damage, CNS damage and reproductive

Plasma arc cutting or welding aluminum can generate ozone. Overexposures to ozone can result in mucous membrane irritation, as well as pulmonary changes including irritation, congestion and edema.

SUSPECTED CANCER AGENT? NO. THIS PRODUCTS INGREDIENTS ARE NOT FOUND IN THE LISTS BELOW

YES. FEDERAL OSHA INTP IARC

		1 1	•				
DAMP ALUMII HEAT WITH L	Fire and Explosion Hazards DAMP ALUMINUM DUST MAY SPONTANEOUSLY HEAT WITH LIBERATION OF HYDROGEN TO FORM EXPLOSIVE MIXTURES MOLTEN MAY EXPLODE ON CONTACT WITH WATER Extinguishing Media not to be used DO NOT USE WATER OR HALOGEN ON DUST FIRES. MOLTEN MAY EXPLODE ON CONTACT WITH WATER						
Stability ∰Stable ∏Unst	Stability Incompatibility (Materials to Avoid) ANHYDROUS BROMINE. ALSO SEE NFPA # 491M						
1 5	Conditions to Avoid SEE FIRE AND EXPLOSION SECTION. SEE ADDITIONAL INFORMATION.						
Hazardous Deco	Hazardous Decomposition Products SEE FIRE AND EXPLOSION SECTION. SEE ADDITIONAL INFORMATION						

VI. ENVIRONMENTAL

Spill or Leak Procedures

NA

Waste Disposal Method

ACCORDING TO LOCAL, STATE AND FEDERAL REGULATIONS

VII. ADDITIONAL INFORMATION

VENTILATION: LOCAL EXHAUST VENTILATION SHOULD BE UTILIZED WHEN WELDING, BURNING, SAWING BRAZING GRINDING OR MACHINING WHEN EXPOSURE EXCEEDS TLV'S.

- 1. HALOGEN ACIDS AND SODIUM HYDROXIDE IN CONTACT WITH ALUMINUM MAY GENERATE MIXTURES OF HYDROGEN-
- 2. FINELY DIVIDED ALIMINUM WILL FORM EXPLOSIVE MIXTURES IN AIR. IT WILL ALSO FORM EXPLOSIVE MIXTURES IN AIR IN THE PRESENCE OF BROWNTES, TODATES OR AMMONTUM NITRATE.
- 3. WIEN REMELITING ALUMINUM SCRAP, EMPRAPPED MOISTURE OR THE PRESENCE OF STRONG OXIDIZERS SUCH AS AMMONIUM NITPATE COULD CAUSE AN EXPLOSION. THIS APPLIES TO THE COLLECTION OF MOISTURE IN SOW CAVITIES AS WELL. MOISTURE MUST BE DRIVEN OFF PRIOR TO REMELTING.
- 4. DO NOT TOUCH CAST ALUMINUM METAL OR HEATED ALUMINUM PRODUCT WITHOUT KNOWING METAL TEMPERATURE. ALUMINUM EXPERIENCES NO COLOR CHANGE DURING HEATING. IF METAL IS HOT AND TOUCHED, BURNS CAN RESULT.
- 5. HARD ALLOY INCOIS IN THE 2000 AND 7000 SERIES MUST BE STRESS! RELIEVED TO PREVENT EXPLOSION WHEN SAWED.
- 6. THE WELDING OF ALLMINUM ALLOYS MAY GENERATE CARBON MONOXIDE, CARBON DIOXIDE, OZONE, NITROGEN OXIDES, INFRA-PED RADIATION AND ULTRA-VIOLET PADIATION.
- 7. ALUMINIM POWDER MUST BE PACKAGED AND SHIPPED AS A FLAMMABLE SOLID. UN1396.

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Company BRALCO METALS 8321 CANFORD ST PICO RIVERA, CALIFORNIA 90880	ISSUE DATE NOVEMBER 25, 1985 REVISED MARCH 1, 1988	Identification Number HALF HARD, SOFT, SHIM HR NAVAL, MUNTZ FREE CUTTING LEADED		
Trade Name (Common Name or Synonym) BRASS	Emergency Phone Number 213-582-2272 213-723-3601			
Chemical Name	Formula	DOT Identification Number NA		

I. INGREDIENTS

BASE METAL, ALLOYING ELEMENTS AND METALLIC COATINGS	CAS #	% COMPOSITION BY	WEIGHT (1)	OSI	HA PEL	ACGIH TLV (mg/m²) (
Base Metal	CAS #			OSHA PEL		
Copper (Cu)	7440-5	0-8	0-70	1	1 (Dust	A Mist)
Alloying Elements						
Zinc (Zn)	7440-6	6-6	0-40	N.E.	5 (As Fu	ıme)
Tin (Sn)	7440-3	1 - 5	<1	2	2	•
Free Cutting Leaded						
Lead (Pb)	7439-9	2-1	< 4	.05	.15 (Dus	t % Fume)
						••

II. PHYSICAL DATA

Material is (At Normal Conditions) (`] Liquid ■ Solid □ Gas □ Other				Appearance and Odor GOLD/YELLOW COLORED, ODORLESS		
Acidity/Alkalinity						Vapor Pressure
	Melting Point	> 1600 · F	Specific Gravity (H,O = 1)	> 8	(mm Hg at 20 C)
pH - NA	Boiling Point	NA F	Solubility in wate	r (% by weight)	NA	NA NA

III. PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection NIOSH/MSHA APPROVED DUST & FUME RESPIRATOR SHOULD BE USED TO AVOID EXCESSIVE INHALATION OF PARTICULATES WHEN EXPOSURE EXCEEDS TLV'S	Hands, Arms and Body PROTECTIVE GLOVES ARE RECOMMENDED DURING HANDLING OF FINES EXPOSURE
Eyes and Face SAFETY GLASSES OR GOGGLES SHOULD BE UTILIZED AS REQUIRED BY EXPOSURE	Other Clothing and Equipment OTHER PROTECTIVE EQUIPMENT SHOULD BE UTILIZED AS REQUIRED BY THE WELDING STANDARD

IV. EMERGENCY MEDICAL PROCEDURES

IF EXPOSED TO EXCESSIVE LEVELS OF METAL FUMES, REMOVE TO FRESH AIR, SEEK MEDICAL AID IMMEDIATELY

STEEL PRODUCTS IN THE NATURAL STATE DO NOT PRESENT AN INHALATION, INGESTION OR CONTACT HAZARD. HOWEVER, OPERATIONS SUCH AS BURNING, WELDING, SAWING, BRAZING AND GRINDING MAY RELEASE FUMES AND/OR DUSTS WHICH MAY PRESENT HEALTH HAZARDS IF TLY'S ARE EXCEEDED MAJOR EXPOSURE HAZARD

MINHALATION SKIN CONTACT SKIN ABSORPTION SINGESTION

Short term exposure to fumes/dust may produce irritation of eyes and respiratory system. Inhalation of high concentrations of freshly formed oxide fumes of copper and lead may cause metal fume fever characterized by a metallic taste in the mouth and irritation of the throat and influenza-like symptoms.

Inhalation or ingestion of lead particles may result in lead-induced systemic toxicity. Symptoms of lead poisoning include abdominal cramps, anemia, muscle weakness and headache. Prolonged exposure can cause behavioral changes, kidney damage, CNS damage and reproductive effects.

SUSPECTED CANCER AGENT? NO THIS PRODUCTS INGREDIENTS ARE NOT FOUND IN THE LISTS BELOW YES FEDERAL OSHAY NTP LARC

Fire and Explosion	Flash Point NA F	Auto Ignition Temperature NA F	Flammable Limits in As Lower % Upper NA %	Extinguishing Media NA			
	Fire and Explosion Hazards Dust Hazard Exists under FAVORING CONDITIONS OF SMALL PRACTICE SIZE. DISPERSION IN AIR AND STRONG IGNITION SOURCE MAY RESULT IN AN EXPLOSION Condition Source May Result in an explosion Condition Source May Result in an explosion Condition Source May Result in an explosion Condition Source May Result in an explosion Condition Source May Result in an explosion Condition Source May Result in an explosion Condition Source May Result in an explosion Condition Source May Result in an explosion Condition Source May Result Conditi						
18.9	Stability Incompatibility (Materials to Avoid) MERCURY, AMMONIA, ACETYLENE, ACIDS Stable []Unstable						
#CBV!	Conditions to Avoid EXPOSURE DURING STORAGE TO STRONG ACIDS, BASES OR OXIDIZING AGENTS						
å.	Hazardous Decomposition Products TOXIC GASES, AEROSOLS & VAPORS MAY BE RELEASED IN A FIRE INVOLVING COPPER ALLOYS IF FUMES OF OTHER COMPOUNDS OR CONTACTING MATERIALS ARE INVOLVED						
VI ENVIRONMENTAL							

VI. ENVIRONMENTAL

Spill or Leak Procedures

NA

Waste Disposal Method

ACCORDING TO LOCAL, STATE AND FEDERAL REGULATIONS

VII. ADDITIONAL INFORMATION

VENTILATION: LOCAL EXHAUST VENTILATION SHOULD BE UTILIZED WHEN WELDING, BURNING.

SAWING, BRAZING, GRINDING OR MACHINING WHEN EXPOSURE EXCEEDS TLV'S

IN WELDING, PRECAUTIONS SHOULD BE TAKEN FOR AIRBORNE CONTAMINATES

WHICH MAY ORIGINATE FROM COMPONENTS OF WELDING ROD

ARC OR SPARK GENERATED WHEN WELDING OR BURNING COULD BE A SOURCE

OF IGNITION FOR COMBUSTABLE AND FLAMMABLE MATERIALS

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